



**PATENT**  
Attorney Docket No. P2483US

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

Adam William Fisher

Application No. 10/615,521

Filed: July 8, 2003

For: CHAIR OR SEAT

Art Unit: 3636

Examiner: Peter R. Brown

**CLAIM OF PRIORITY**

Mail Stop Issue Fee  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In response to the Notice of Allowability mailed September 7, 2005, Applicants enclose herewith a certified copy of priority Application No. 2002950041, filed in Australia on July 8, 2002. Accordingly, Applicants respectfully request acknowledgement of the claim for foreign priority in accordance with the provisions of 35 USC 119.

Respectfully submitted,

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Date: December 1, 2005



Australian Government

Patent Office  
Canberra

I, JANENE PEISKER, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2002950041 for a patent by CAMATIC PTY. LIMITED as filed on 08 July 2002.

I further certify that pursuant to the provisions of Section 38(1) of the Patents Act 1990 a complete specification was filed on 08 July 2003 and it is an associated application to Provisional Application No. 2002950041 and has been allocated No. 2003213309.

WITNESS my hand this  
Twenty-fourth day of November 2005

A handwritten signature in dark ink, appearing to read 'J. Peisker'.

JANENE PEISKER  
TEAM LEADER EXAMINATION  
SUPPORT AND SALES



CERTIFIED COPY OF  
PRIORITY DOCUMENT

AUSTRALIA

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Patents Act 1990

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## PROVISIONAL SPECIFICATION

APPLICANT: CAMATIC PTY. LIMITED  
NUMBER:  
FILING DATE:

Invention Title: CHAIR OR SEAT

The invention is described in the following statement:-

## CHAIR OR SEAT

This invention relates to a chair or seat and is particularly applicable to theatre or stadium seats but is equally applicable to other forms of seats which have their seat and/or back formed of an injection moulded plastics material.

5 For the purposes of convenience in this specification we shall refer to the complete article as a chair (although conventionally in some of the areas for which it is particularly designed it would normally be called a seat) and to reserve the word "seat" to the substantially horizontal part of the chair upon which a user actually sits.

10 There have, for many years, been manufactured chairs which have either the seat or the back of an injection moulded plastics material.

Conventionally, to give these materials the required strength for relatively rugged use, there was provided a peripheral metal frame to which the seat or back was connected and, in this way, chairs were made which were quite utilitarian but which were somewhat expensive to manufacture and necessitated substantial assembly.

15 More recently it has been known to manufacture chair seats or backs from an unreinforced plastics material but in order to obtain the necessary strength it has been practice to provide a plurality of ribs extending generally parallel to the centre line of the chair across a substantial portion of the depth or height of the seat or back.

20 These components, whilst having sufficient physical strength, are not greatly aesthetically pleasing and are also very difficult to clean.

It will be appreciated, that particularly in outdoor chairs, but in others which are commercially used, there can often be a build up of dust and dirt and in order to clean

these types of chairs it would be necessary for a cleaner to physically pass a cleaning cloth or the like along the length of each of the grooves.

5 These chairs also had certain difficulties in moulding as there were a number of relatively narrow ribs which had to be filled by the material being passed into the die during production.

Conventionally, it has been the practice to enable chairs to have seats with pivotal connections to the frame so as when the seat is not being used it adopts a position directed generally upwardly so that no part of the seat extends substantially forwardly and, particularly with seats with arms, no part extends beyond the extension of the arms  
10 to provide maximum space for a person who is passing along an aisle of such seats to so pass.

In order to obtain this movement it is necessary to counterweight the seat and generally the counterweights have been connected to the rear of the seat on its underside.

This may not only be not aesthetically pleasing but in a situation where a semi-riot may  
15 form, such as in soccer stadiums, it was possible to remove the counterweight from the underside of the seat, although this may mean physical damage to the seat, and be used as a weapon.

There have also been various modes of providing the movement of the seat about its pivot to control this movement and these have been quite complex and necessitated  
20 substantial assembly operations.

Further there have been provided various methods of connecting chairs to surfaces, say in stadium seating where there are a number of chairs connected to the concrete risers or the treads of the stadium arrangement, and it is desirable to permit this connection to be as simple and rapid as possible not only for initial setting up of the stadium but also if

there are damaged chairs which need to be removed so that they can be removed quickly and efficiently.

At the same time, the connection has to be sufficiently stable for a user to use the chair even under conditions of substantial excitement and also to be not able to readily remove  
5 the chair from the connection as a chair so removed can be a weapon if there is any riotous behaviour.

A first object of the invention is to provide a chair in which the seat and/or back is made of a moulded plastics material which does not need additional reinforcement and which gives a satisfactory appearance aesthetically.

10 A second object is to provide a chair of these type where the seat is counterbalanced so as to be able to rotate about a pivot where the counterbalance is within the confines of the seat so cannot readily be removed.

A third object of the invention is to provide a method of locating a chair seat for rotation so that the rotation is controlled and yet the components and assembly of the seat are  
15 minimal.

A still further object is to provide an improved method of connecting a seat to a member.

In the first aspect of the invention we provide a chair seat and/or back where, during moulding at the sides of the member, there are removable cores which extend into the body so that extrusion of plastics material occur between the core and the female part of  
20 the die so the formation of the chair has an insert void surrounded, or substantially surrounded by the plastics material having been moulded to impart substantial rigidity to the chair seat or back.

In a preferred form of this arrangement when forming a seat using such cores, the cores adjacent the rear of the seat are extended and effectively the cores from each side terminate in contact or near contact so that when the seat is moulded there is a continuous compartment passing through the seat from each side thereof.

5 In a second aspect of the invention we provide a pivot assembly for a chair seat which include an aperture on the chair arms or frame, a pivot member associated with the chair seat and adapted to pass through the aperture and an intermediate member which acts as a bearing for the rotation which acts as a buffer at the extremes of the rotation and acts to retain the assembly together.

10 In one particular form the apertured portion on the seat frame or arm may have a plurality of substantially segmented portions directed inwardly, associated with the pivot member. There can be portions extending outwardly with the two sets of portions being complimentary to enable rotation of the two members between a first position at which the seat is in a useable condition to a second position where the seat is substantially  
15 upwardly directed, in these two positions the members effectively are acting as stops and the multipurpose member having a plurality of outwardly directed radial springs one associated with each pair of likely abutting members.

The arrangement being such that these springs act as a buffer at the end of the movement in each direction.

20 The device can also have extensions with returns or saw teeth or the like on their outer ends which can be adapted to pass through corresponding apertures in the area surrounding the receiving aperture on the frame or arms so that when the chair is assembled these act to prevent ready removal.

In a third aspect of the invention we provide a means whereby chairs can readily be  
25 connected to a surface such as a beam, a riser or a tread which includes an extrusion

upwardly directed connected to the fixed surface and an extension from the back of the chair which is formed to enter a hollow centre of the extrusion and to be located thereon and having means whereby the member can be locked onto the extrusion.

5 It is preferred that there also be some alternative means which prevent ready removal of the chair from the extrusion unless a detent or the like is operated so that, even if some person released the lock, the chair would still not be free to be removed from the extrusion.

In order that the invention may be more readily understood we shall describe particular embodiments of the various aspects of the invention.

#### 10 **Formation of the Chair Seat and Back**

As the back is somewhat simpler than the seat we shall describe the formation of this first and then describe the seat.

15 The back is injection moulded from a satisfactory engineering grade plastics material and may have a forwardly directing face which is curved to be comfortable for a wide range of users and which may be formed adjacent each side, in the lower part thereof, with recesses or the like to receive part of the armrest construction which can be considered to be part of the frame of the chair and by means of which the chair is ultimately connected to a beam or the like.

20 The back differs from more conventional backs in that along each side, in the mould, there are core members which extend into the mould so that, when the seat is formed, there is a recess on each side which has plastics material around its periphery and which thereby provides a back which has a high degree of internal rigidity.

The form of the core can be curved so that the thickness of the material adjacent the forwardly directed part of the back is substantially constant and it may be terminated with a curved portion at the top so that the back looks attractive whilst having the strength which is gained by the particular formation of having effectively parallel parts of plastics material spaced by the thickness of the core.

We find, in this way, we can produce a back which is self sustaining and needs no further reinforcement and needs no ribbed reinforcement.

The seat of the chair is manufactured in a similar way and the forward portion of the seat is provided with a similar recess formed by core members which extend into the die from the side.

The seat differs from the back in that, towards the rear of the sides of the seat, there is an injected circular recess which is adapted to receive the pivot mechanism of the seat and, closer to the rear of the seat, the core members are extended so they each pass through half of the width of the seat, when they are in position in the die, so that when injection is completed there is an enclosed channel which extends across the width of the seat adjacent the rear of the seat.

The purpose of this channel is that it can receive the counterweight for the seat and when the ends of the channel are closed then the counterweight is fully enclosed within the channel and is not separable from the seat.

This differs from every form of counterweighted seat previously produced.

With the encasing of the counterweight, when the seat is in its raised position, one simply sees the walls of the compartment in which the counterweight is received so again it is possible to produce a seat which is quite aesthetic when it is raised which has the fully

enclosed counterweight and, because it does not need reinforcing ribs, is also simple to clean should this be necessary.

### **The Pivot Mechanism**

The pivot mechanism for the seat is ultimately a combination of three components.

- 5     The first can be the armrest component which also basically form effectively part of the frame of the device and, as discussed in relation to the seat back, provides the connection of the back to the assembly.

10     The arrangement may be such that there is a metal bar which extends across the rear of the seat and which carries the seat connection, which will be described hereinafter, and which enters into formed recesses in the arm assembly below their point of connection to the seat back.

A forwardly directed portion of this member can be provided with an inwardly directed annular skirt having three spaced inward incursions which, in plan, have tapered sides.

There can also be a central inwardly directed annular member in the centre of the skirt.

- 15     This is designed to be associated with a bearing, stop and latch sub-assembly hereinafter, for convenience, called the bearing member which may be made of a low friction material, such as nylon, and which has a central hollow cylindrical portion which is adapted to be located over the cylindrical extension centrally of the skirt and which has three radial spring members which are in the form of flat blades extending equidistantly  
20     outwardly therefrom each being received in one of the spaces between each adjacent pair of inwardly directed members previously described.

A seat pivot member which is adapted to be connected to the side of the seat member and which has a shape complimentary to the shape of the annular skirt, and which is adapted to be received within the skirt, and has an extension adapted to receive the bearing member and to be operatively connected to this so the bearing member rotates therewith  
5 passes into this and is held in position relative to this by extensions from the adjacent end of the bearing member which are adapted to pass through apertures into the seat member, the extensions being formed to have a saw tooth or the like on their outer end so that, when the components are assembled, these extensions pass through the apertures in the seat attachment member and spring outwardly so as to engage the surface of the member  
10 to prevent relative outward movement between the two components.

The orientation is such that the seat can move between two positions.

Its rest position is where the counterweight causes the seat to extend upwardly to effectively clear the aisle so that persons can readily walk therethrough.

Its other position is where a person is sitting on the seat, the person's weight overcomes  
15 the counterweight and the seat is more or less horizontal.

The sides of the extensions into the annular skirt and the complimentary portions on the seat member are such that stops are provided at each of these positions.

As far as the seat adopting its initial position is concerned, it is in fact the springs extending outwardly from the bearing member which strike the extensions into the skirt  
20 and locate the seat in its upper position.

As these springs are at an angle to the adjacent extension on the seat member, there can, in fact, be another degree of movement against the springs if the seat is physically rotated somewhat further.

This may be a movement of approximately  $15^{\circ}$  so that, should a user of the seat wish to permit another patron to pass, they can put pressure onto the seat which will move back to the further position and, when this pressure is removed, the springs will return the seat to its normal rest position and when the person sits on the seat then it will adopt the  
5 normal second position.

The springs thus form buffers at each end of the movement of the seat. As the seat moves to its initial position, and therebeyond, as described above there is a buffering movement and when a user sits on the seat, the springs are located between the stops.

The various components, that is the body sub-assembly which includes the arm, the  
10 connection to the bar extending across the seat, the connection to the seat back and the pivot assembly and the seat portion of the pivot assembly, can be made of engineering grade plastics materials and, as described above, once the bearing member is located and clipped to the seat assembly then the arrangement is complete.

The bar which extends between the two body/armrest assemblies can be received in the  
15 appropriate recesses in the body assemblies and can be held thereto by bolts or the like.

It can thus be seen that there is provided a neat and practical bearing arrangement where the buffers to extreme movements of the seat are provided by the outwardly directed springs which also provide a further degree of movement of the seat from its normal upward position.

## 20 **Connection Mean**

The connection mean is adapted to be received in an aluminium extrusion or the like which can be directly connected to the riser of the stadium stairs, can be connected to a bar which extends relative to the stadium floor or could be connected to a member on the flat portion of the stadium floor.

The connector means can have a pair of downwardly extending spaced members which can be tapered at their lower ends and can be provided with recesses whereby bolts can pass therethrough into the bar connecting the two body/pivot members and can be connected by way of being threaded into this bar or to nuts located therebehind.

- 5 The arrangement is such that these members stand somewhat proud of the bar and spacers can be provided by way of extensions about the positions of connection.

It is preferred that the extrusion has cutouts to permit it to pass over these extensions and the upper portion of the connector member may be provided with a curved head and may extend beyond the downwardly directed members by approximately the thickness of the  
10 extrusion.

We can also provide a downwardly directed member from the underside of the head which is adapted to be received in a portion of the complimentary extrusion.

The arrangement is such that the chair would normally be provided with the connector member being loosely connected to the bar so that the chair can simply be located over  
15 the extrusion and moved into contact therewith so that it is received within the extrusion and moved downwardly until the upper part of the extrusion comes into contact with the extended portion of the head of the connector.

It is only necessary then to tighten the bolt so that there is a clamping action between the bar which extends across the back of the chair and the connector member against one  
20 surface of the extrusion.

It may be preferred that the downwardly directed member has a protuberance which can, when the chair is properly seated, enter into an aperture or the like in the extrusion so that, when the chair is not held fixed by the bolt, there is a resistance to upward

movement unless the protuberance is forced into the extrusion to free the connection means relative thereto.

The arrangement of this can be such that we provide a special tool which can move the protuberances inwardly to free them from the apertures to permit the chair to be readily  
5 removed.

This means that even if the connection bolts are loosened or removed, there will be a resistance to the removal of the chair. This can restrict stealing of chairs or the use of chairs as weapons.

Whilst we have described, in the embodiment, a chair which has a pivotally mounted seat  
10 it will be appreciated that the invention, as far as the formation of the seat and back are concerned, can equally well be applied to a fixed seat and the invention, as far as the connector means is concerned, could be used with seats of various configurations and is not restricted to use with a seat exactly as described.

Thus it can be seen that various variations and modifications can be made in the seat of  
15 the invention without departing from the spirit and scope of the invention.

DATED this 8 day of July, 2002

CAMATIC PTY. LIMITED

By Its Patent Attorneys

A TATLOCK & ASSOCIATES